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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FISH & NEAVE IP GROUP
ROPES & GRAY LLP
ONE INTERNATIONAL PLACE
BOSTON, MA 02110-2624

EXAMINER

PEREZ, JULIO R

ART UNIT	PAPER NUMBER
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2681

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/998,946	Applicant(s) ELLIOTT ET AL.	
	Examiner Julio R Perez	Art Unit 2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-26 and 28-35 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-3,6,7,25,26 and 28-35 is/are allowed.
6) ☒ Claim(s) 8-11 and 13-24 is/are rejected.
7) ☒ Claim(s) 12 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 19,23,24 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

2. The indicated allowability of claim 14 -18 is withdrawn in view of the discovered reference(s) to Ady et al. (6694149). Rejections based on the cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 8-11, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Ady et al. (6694149) (hereinafter, Ady).

Regarding claims 8, 13, Ady discloses a method and a system of conveying messages in a sensor network, comprising: organizing a sensor network into a hierarchy of tiers (col. 2, lines 46-50; col. 3, lines 24-34; Fig. 2, devices are arranged in different groups); transmitting one or more transmit/receive scheduling messages throughout the network (col. 24-44, a control message, with a scheduled time, is sent ahead of time in order to allow data to be communicated to the network device; thus,

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receiving a receiving scheduling time); and transmitting and receiving data messages between nodes in adjacent tiers based on the one or more transmit/receive scheduling messages (col. 2, lines 29-50, devices in the network are prepared to receive messages in the active mode after the sending of the activating scheduling time); means for transmitting and receiving messages between sensor nodes in adjacent tiers based on the one or more transmit/receive scheduling messages, wherein at least one sensor node in a tier of the network receives data messages from sensor nodes in a higher tier and forwards the data messages to a sensor node in a lower tier (col. 2, lines 27-50; col. 3, lines 24-28, the devices are arranged in groups about the network, and communicating with one another, further, receiving data from different devices around the network, and which could be located at different groups).

Regarding claim 9, Ady discloses, wherein the transmit/receive scheduling messages comprise time schedules for powering-on and powering-off transmitters and receivers at each of the nodes in the adjacent tiers (col. 2, lines 29-45).

Regarding claim 10, Ady discloses, wherein a destination of the data messages comprises at least one data collection point (col. 2, lines 24-36; col. 3, lines 16-23; col. 5, lines 19-43).

Regarding claim 11, Ady discloses, wherein the at least one data collection point resides in a lowest tier of the network ((col. 2, lines 24-36; col. 3, lines 16-23; col. 5, lines 19-43; Fig. 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ady et al. (6694149) (hereinafter, Ady).

Regarding claims 14, 18, Ady discloses a method and a system of conserving energy in a multi-node network, comprising: organizing the multi-node network into tiers (col. 2, lines 46-50; col. 3, lines 24-34; Fig. 2, devices are arranged in different groups); producing a transmit/receive schedule at a first tier in the network (col. 24-44, a control message, with a scheduled time, is sent ahead of time in order to allow data to be communicated to the network device; thus, receiving a receiving scheduling time).

Ady does not explicitly disclose controlling the powering-on and powering-off of transmitters and receivers in nodes according to the transmit/receive schedule.

Ady strongly teaches multiple groups defined, wherein each group having its own control messages; hence, allowing distribution of network devices among several groups (col. 2, lines 46-50; Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the system as taught by Ady with receiving means from several nodes in the system because it ~~because it~~ would provide the system with further augmented effectiveness.

Regarding claim 15, Ady discloses, further comprising: transmitting a schedule message to nodes in the tier adjacent to the first tier, the schedule message comprising the transmit/receive schedule (col. 2, lines 29-45).

Regarding claim 16, Ady discloses, further comprising: receiving data messages from the nodes in the adjacent tier when the transmitters for the nodes in the adjacent tier are powered-on (col. 2, lines 24-36; col. 3, lines 16-23; col. 5, lines 19-43).

Regarding claim 17, Ady discloses, further comprising: transmitting schedule messages to the nodes in the adjacent tier when the receivers the nodes in the adjacent tier are powered-on (col. 2, lines 24-36; col. 3, lines 16-23; col. 5, lines 19-43).

Claims 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ady et al. (6694149) (hereinafter, Ady).

Regarding claims 19, 23, 24, Ady discloses a method, a node system, and a computer medium of forwarding messages at a first node in a network, comprising: selecting one of the plurality of nodes as a parent node (col. 2, lines 26-36, a network device is activated at a scheduled time); and selectively forwarding data messages to the parent node based on the received scheduling message associated with the selected one of the plurality of nodes (col. 24-44, a control message, with a scheduled time, is sent ahead of time in order to allow data to be communicated to the network device).

Ady does not explicitly disclose receiving scheduling messages from a plurality of nodes in the network.

Ady strongly teaches multiple groups defined, wherein each group having its own control messages; hence, allowing distribution of network devices among several groups (col. 2, lines 46-50; Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the system as taught by Ady with receiving means from several nodes in the system because it would provide the system with further augmented effectiveness.

Regarding claim 20, Ady discloses further, organizing nodes in the network into a hierarchy of tiers (col. 2, lines 46-50; col. 3, lines 24-34; Fig. 2).

Regarding claim 21, Ady discloses, wherein the plurality of nodes reside in a higher tier than the first node (col. 2, lines 46-50; col. 3, lines 24-34; Fig. 2).

Regarding claim 22, Ady discloses, wherein the data messages are destined for a data collection point residing in a lowest tier of the network (col. 2, lines 46-50; Fig. 2).

Allowable Subject Matter

7. Claim 12, is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach forwarding data messages to a sensor node in a lower tier when received from a higher tier.

8. Claims 1-3, 6, 7, 25-26, 28-29, 30, 31, 32-34, 35 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1, 3, 7, prior art has not been found that suggests or renders obvious producing a second powering-on schedule based on the first powering-on schedule and transmitting the second powering-on schedule from the node to other nodes in the network when the transmitter is in a powered-on condition, in combination with each and every other limitation in the claim(s) as defined by applicant.

Regarding claims 25,30,31, prior art has not been found that suggests or renders obvious receiving the scheduling message from the second node in the network, further wherein the scheduling message specifies a first communication schedule that indicates times at which the first and second nodes may communicate with one another and a second communication schedule that indicates times at which the first node may communicate with each of the one or more other nodes, in combination with each and every other limitation in the claim(s) as defined by applicant.

Regarding claim 32, prior art has not been found that suggests or renders obvious second data comprising a first time schedule for transmitting messages from the parent node to the affiliated sensor nodes and a second time schedule for receiving messages at the parent node from each of the affiliated sensor nodes, in combination with each and every other limitation in the claim(s) as defined by applicant.

Regarding claim 35, prior art has not been found that suggests or renders obvious determining a second communication schedule that indicates times for each of the neighboring nodes to communicate with other nodes in the network, further

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transmitting a message to each of the neighboring nodes, wherein the message includes the first communication schedule and the second communication schedule, in combination with each and every other limitation in the claim(s) as defined by applicant.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R Perez whose telephone number is (703) 305-8637. The examiner can normally be reached on 7:00 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 703-306-0003. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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EMMANUEL L. MOISE
SUPERVISORY PATENT EXAMINER